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## DESCRIPTION OF INVENTION

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(71) Special Design Bureau for Drill Bits of the Kuibyshevburmash Production Association

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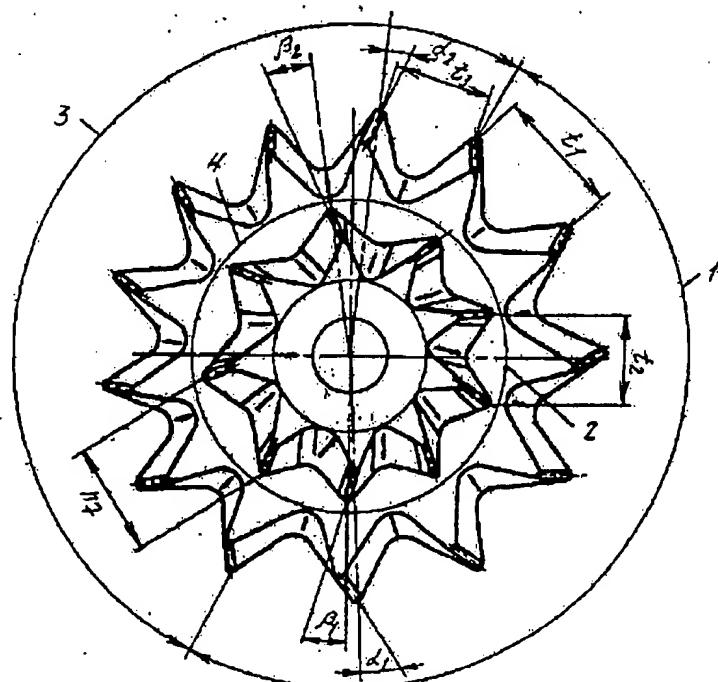
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(56) USSR Certificate of Authorship

No. 1263799, cl. E 21 B 10/16, 1983.

### (54) DRILL BIT CUTTER

(57) The invention relates to drilling. The purpose of the invention is to increase the efficiency of drilling. The cutter contains rows of teeth that are grouped in semicircles (1-4) by increment of spacing. The teeth in each group of the row are oriented opposite at a 15-45 angle to the cutter. Groups of teeth with a larger increment alternate with groups of teeth with a smaller increment on the adjacent row. The teeth of adjacent rows are oriented opposite to each other along the cutter. When the cutter is working, the cusps between the indentations on the face from the teeth of one semicircle are covered by the teeth of the other semicircle. This promotes destruction of the rod on the face. 1 z.p. formula, 1 ill.



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The invention relates to rock drilling bits and is an improvement of the existing device under certificate of authorship No. 1263799.

The purpose of the invention is to increase the efficiency of drilling.

The drawing shows the proposed cutter from above.

On the rows of one semicircle (1 and 2), the teeth are placed at the angle  $\alpha_1$  or  $\beta_1$  to the cutter, and on the other semicircle (3 and 4) at the angle  $\alpha_2$  or  $\beta_2$  and are inclined in opposite directions with respect to the cutter. Teeth grouped with an interval of  $t_1$  and  $t_2$  alternate with teeth grouped with an interval of  $t_3$  and  $t_4$ , respectively;  $t_1 > t_3$  and  $t_4 > t_2$ . The teeth inclined at  $\alpha_1$  and  $\alpha_2$  on one row alternate with the teeth inclined at the angle  $\beta_1$  and  $\beta_2$ , respectively, on the adjacent row.

The cutter works in the following manner.

When the cutter rotates, there is a reduction in wear and partial chipping of the tips of the main cutting edges, because the cusps between

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the indentations on the face from the teeth of one semicircle are covered by the teeth of the other semicircle.

The proposed scheme of placement of teeth on the cutter permits an increase in the rate of drilling and the mechanical speed of drilling due to the destruction of the rod on the face and enhances the durability of the rig by more evenly distributing the load along the cutter.

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#### *Formula of the Invention*

1. A drill bit cutter under certificate of authorship No. 1263799, distinguished by the fact that, in order to increase the efficiency of drilling, teeth in each group of the row are oriented opposite at a 15–45 angle to the cutter. Groups of teeth with a larger increment alternate with groups of teeth with a smaller increment on the adjacent row.

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2. A drill bit cutter as in 1, distinguished by the fact that the teeth of adjacent rows are oriented along the cutter in directions opposite to each other.

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